

FIG. 1

PARALLEL EXECUTION BOUNDARY INFORMATION 100
FORMAT INFORMATION 101

FIG. 2A

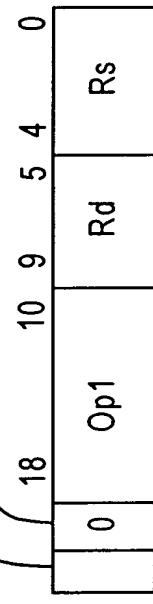


FIG. 2B

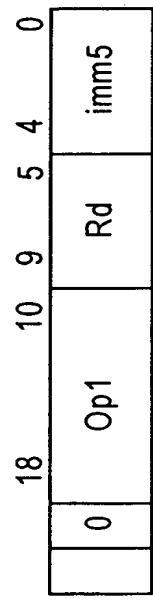


FIG. 2C

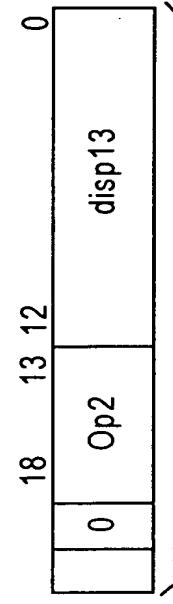


FIG. 2D

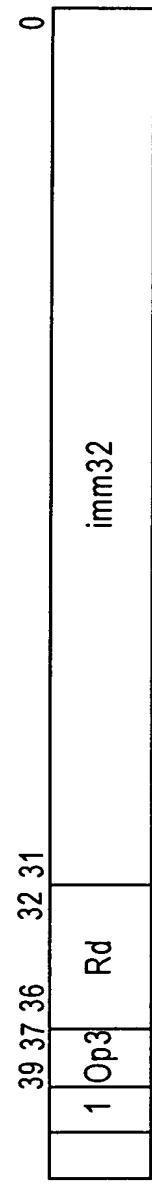


FIG. 2E

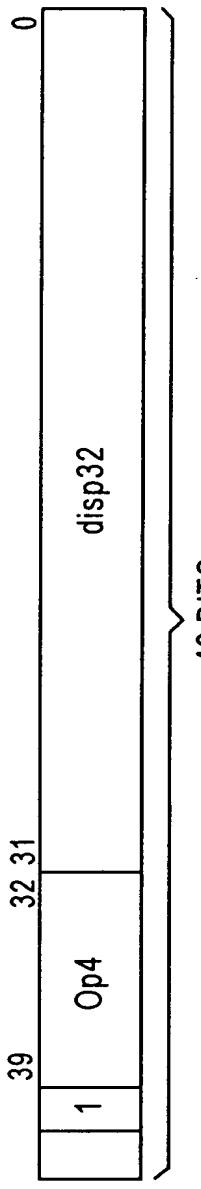


FIG. 3A

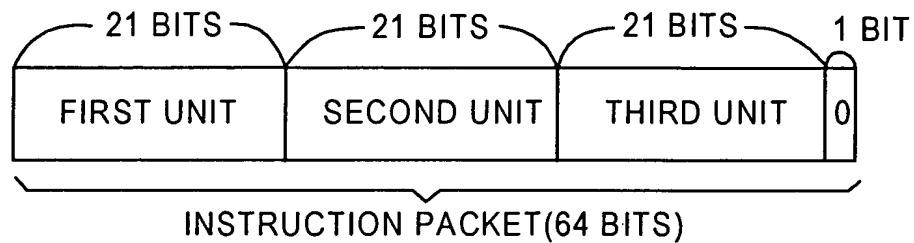


FIG. 3B

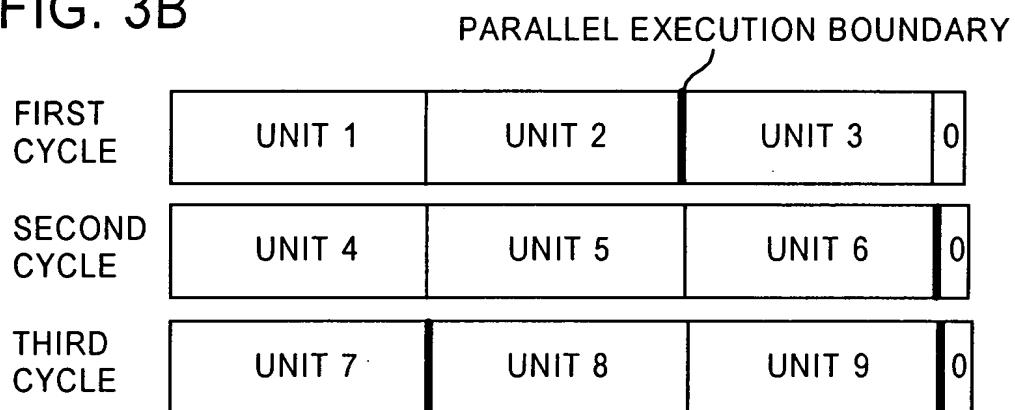


FIG. 3C

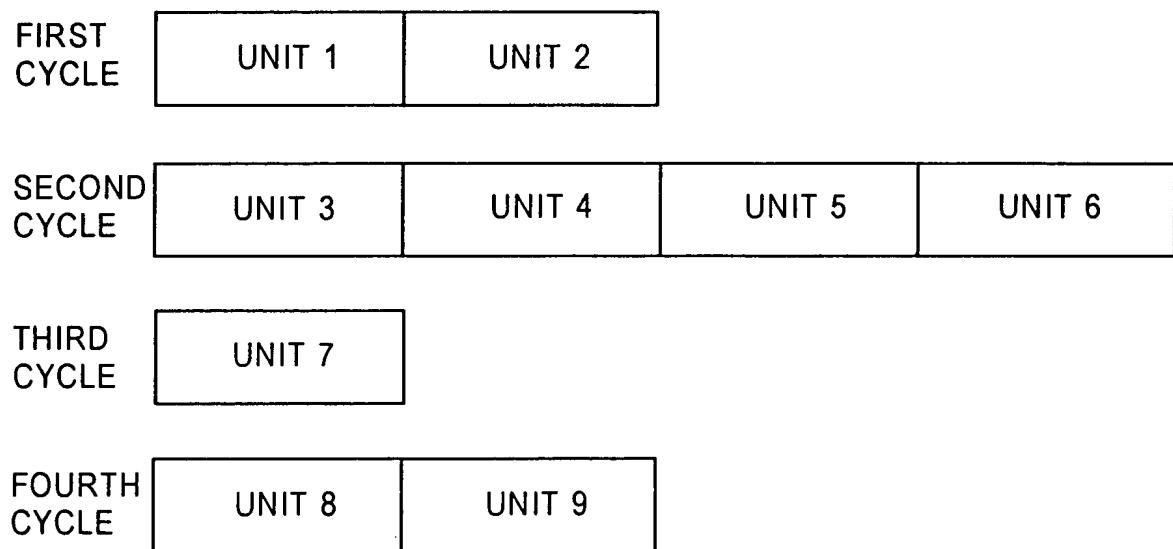


FIG. 4

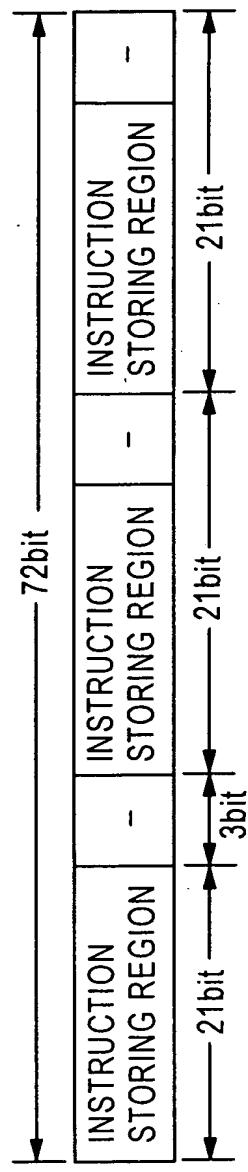


FIG. 5

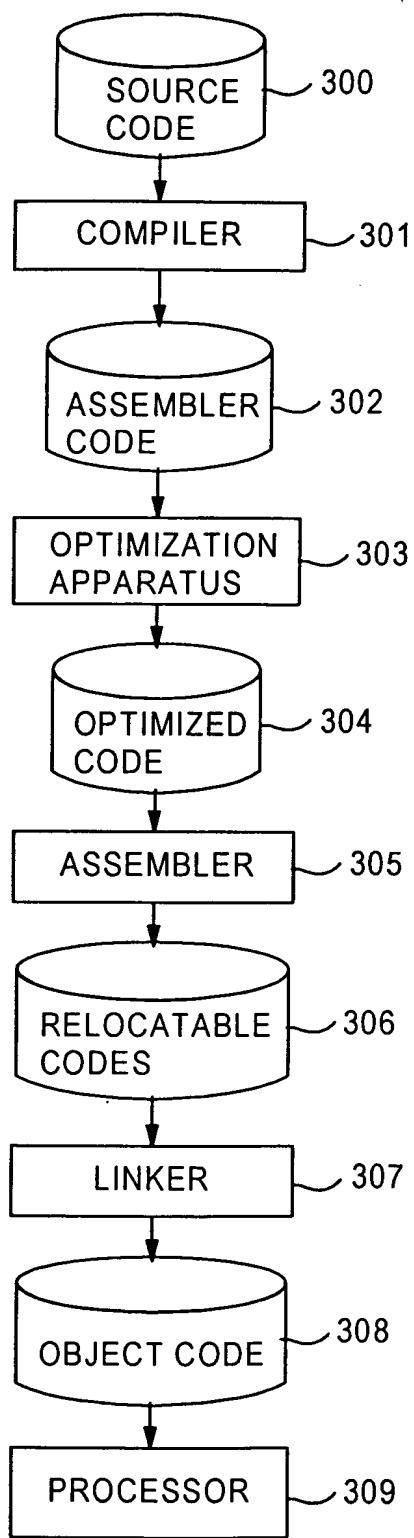


FIG. 6

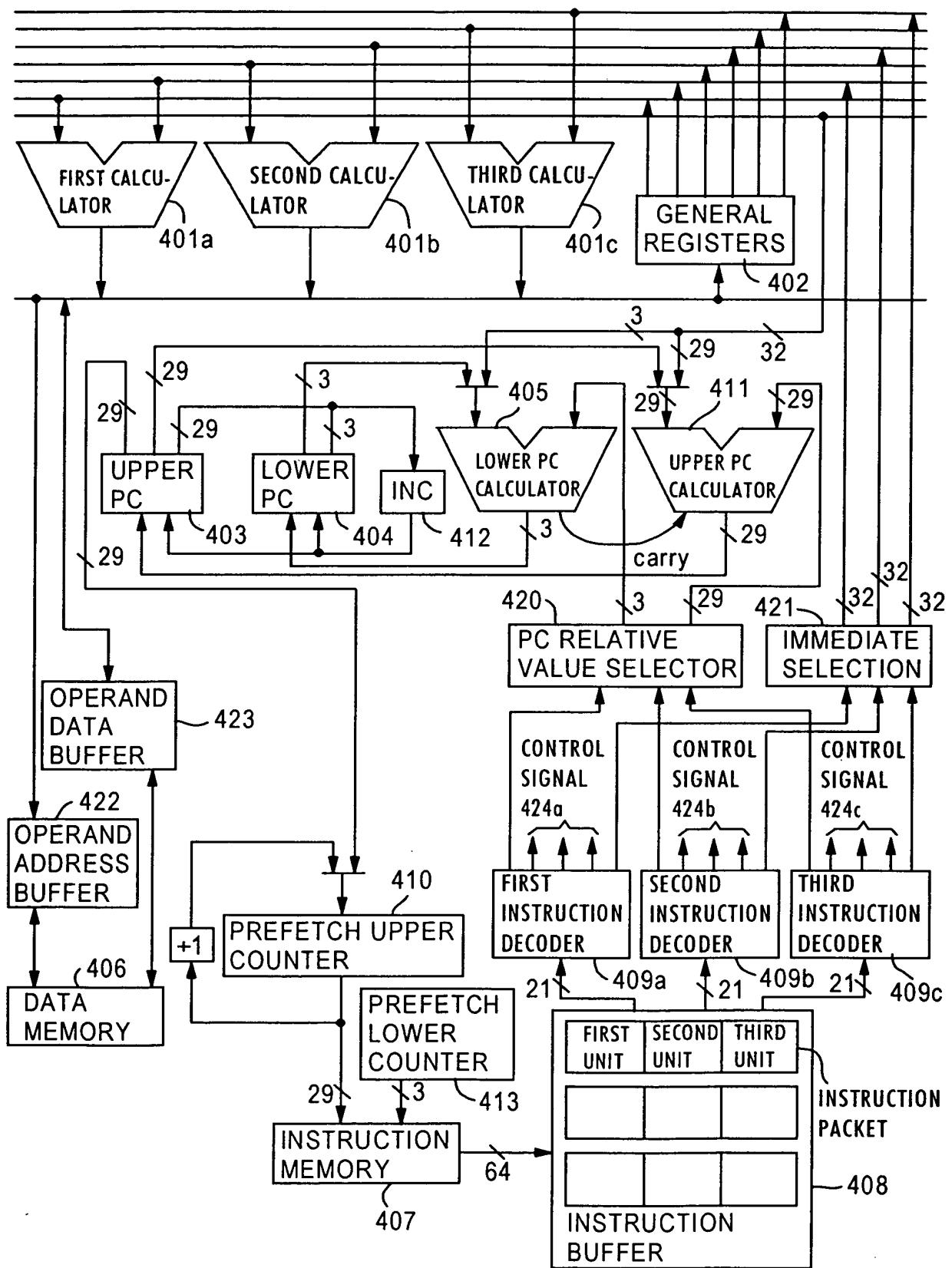


FIG. 7

| INCREMENT VALUE | IN-PACKET ADDRESS BEFORE UPDATING | 3'b000 | 3'b100 |
|-----------------|-----------------------------------|---------------------|---------------------|
| 1 | | 3'b010 | 3'b000 (CARRY 1) |
| 2 | | 3'b100 | 3'b000 (CARRY 1) |
| 3 | | 3'b000 (CARRY 1) | 3'b100 (CARRY 1) |
| 4 | | 3'b010 (CARRY 1) | 3'b000 (CARRY 2) |

FIG. 8A

| LOWER 3 BITS OF ADDRESS VALUE | 3'b000 | 3'b010 | 3'b100 |
|---|--------|---------------------|---------------------|
| LOWER 3 BITS OF PC RELATIVE VALUE | 3'b000 | 3'b010 | 3'b100 |
| 3'b000 | 3'b000 | 3'b010 | 3'b100 |
| 3'b010 | 3'b010 | 3'b100 | 3'b000 (CARRY 1) |
| 3'b100 | 3'b100 | 3'b000 (CARRY 1) | 3'b010 (CARRY 1) |

FIG. 8B

| LOWER 3 BITS OF ADDRESS VALUE(TO BE SUBTRACTED) | 3'b00 | 0b010 | 0b100 |
|--|--------|----------------------|---------------------|
| LOWER 3 BITS OF ADDRESS VALUE(BEFORE SUBTRACTION) | 3'b000 | 3'b100 (CARRY, 1) | 3'b010 (CARRY 1) |
| 3'b000 | 3'b000 | 3'b100 (CARRY, 1) | 3'b100 (CARRY 1) |
| 3'b010 | 3'b010 | 3'b000 | 3'b100 (CARRY 1) |
| 3'b100 | 3'b100 | 3'b010 | 3'b000 |

FIG. 9

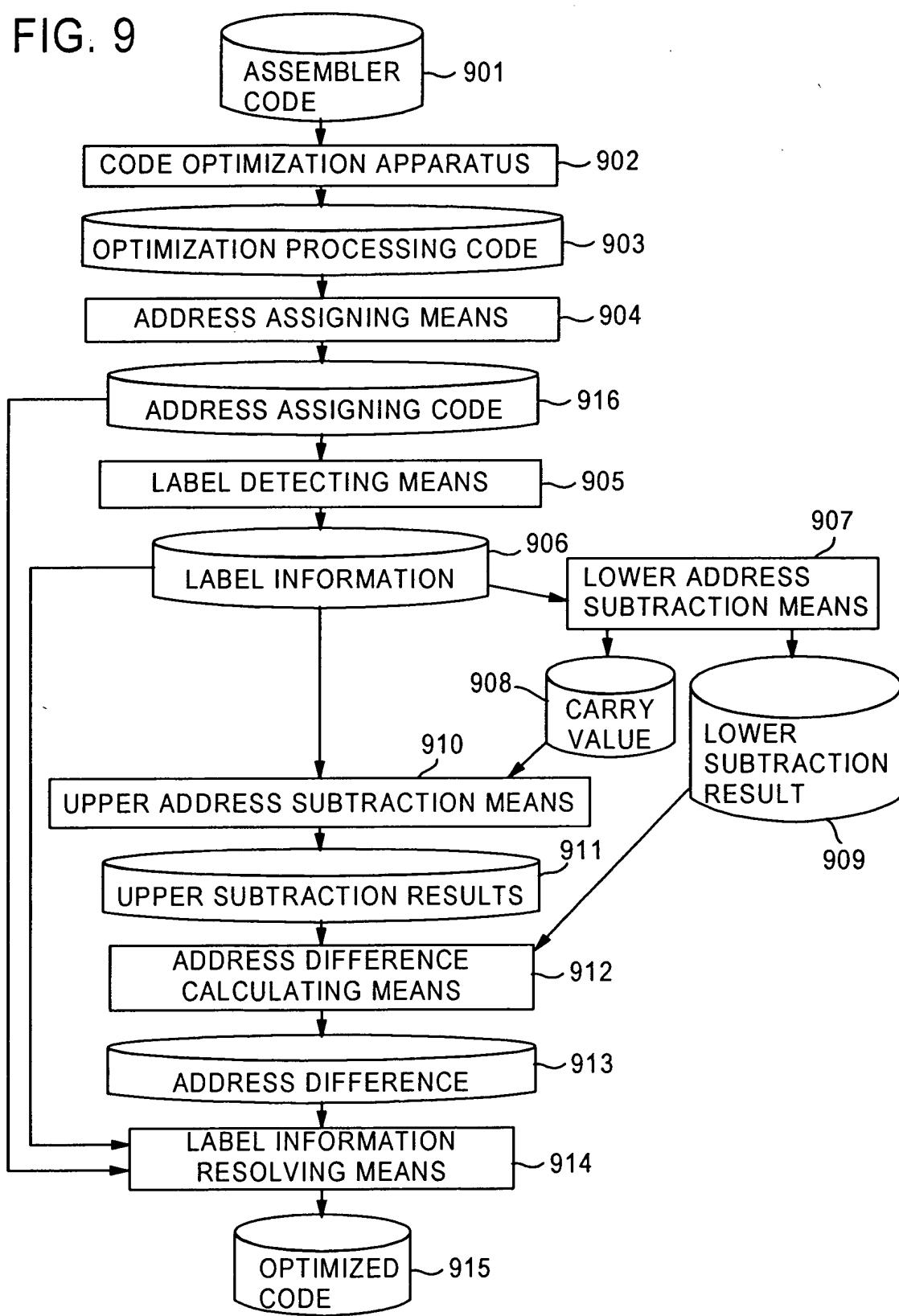


FIG. 10

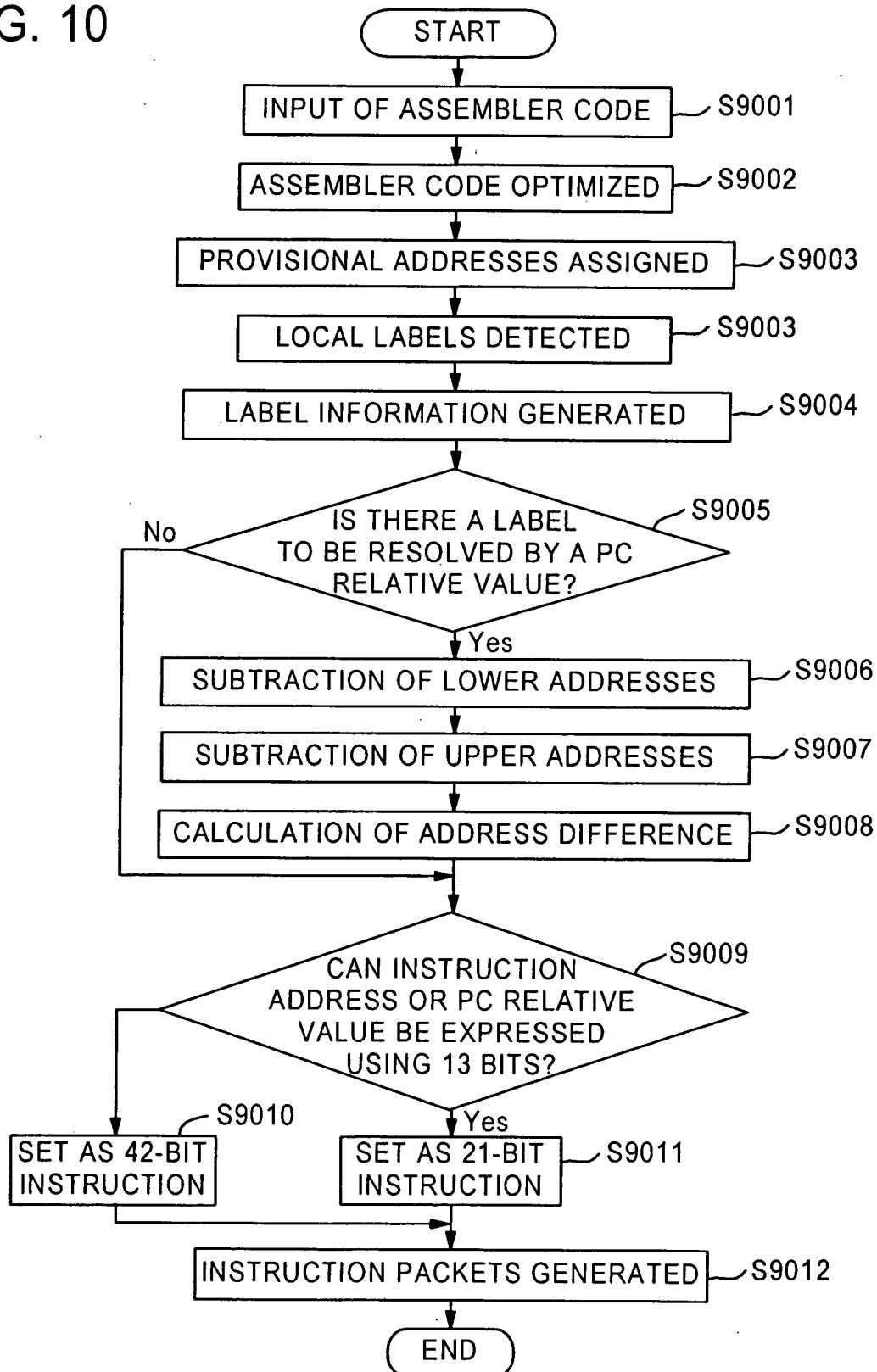


FIG. 11

| | | |
|-----|-------------|----------|
| L1: | mov r2, r1 | · · 1000 |
| | jsr f | · · 1001 |
| | add r0, r4 | · · 1002 |
| | and r1, r3 | · · 1003 |
| | mov L2, r2 | · · 1004 |
| | 1d (r2), r0 | · · 1005 |
| | bra L1 | · · 1006 |
| | add r2, r3 | · · 1007 |
| ... | | |
| L2: | ... | · · 1008 |

FIG. 12

| | | |
|--------------|---------------|----------|
| 32'h00000800 | L1: mov r2,r1 | · · 1000 |
| 32'h00000802 | jsr f | · · 1001 |
| 32'h00000804 | add r0, r4 | · · 1002 |
| 32'h00000808 | and r1, r3 | · · 1003 |
| 32'h0000080a | mov L2, r2 | · · 1004 |
| 32'h00000810 | 1d (r2), r0 | · · 1005 |
| 32'h00000812 | bra L1 | · · 1006 |
| 32'h00000814 | add r2, r3 | · · 1007 |
| | ... | |
| 32'h12345678 | L2: ... | · · 1008 |

FIG. 13

| INSTRUCTION | RESOLVING VALUE |
|-------------|---|
| mov L2, r2 | ADDRESS 32'h12345678 |
| bra L1 | PC RELATIVE VALUE 32'h00000800-32'h00000812 |

FIG. 14

| | | |
|-----|--|------|
| L1: | mov r2, r1 jsr f add r0, r4 | 1300 |
| | and r1, r3 mov L2, r2 (mov L2, r2) | 1301 |
| | 1d (r2), r0 bra L1 add r2, r3 | 1302 |
| | ... | |
| L2: | | 1303 |

FIG. 15

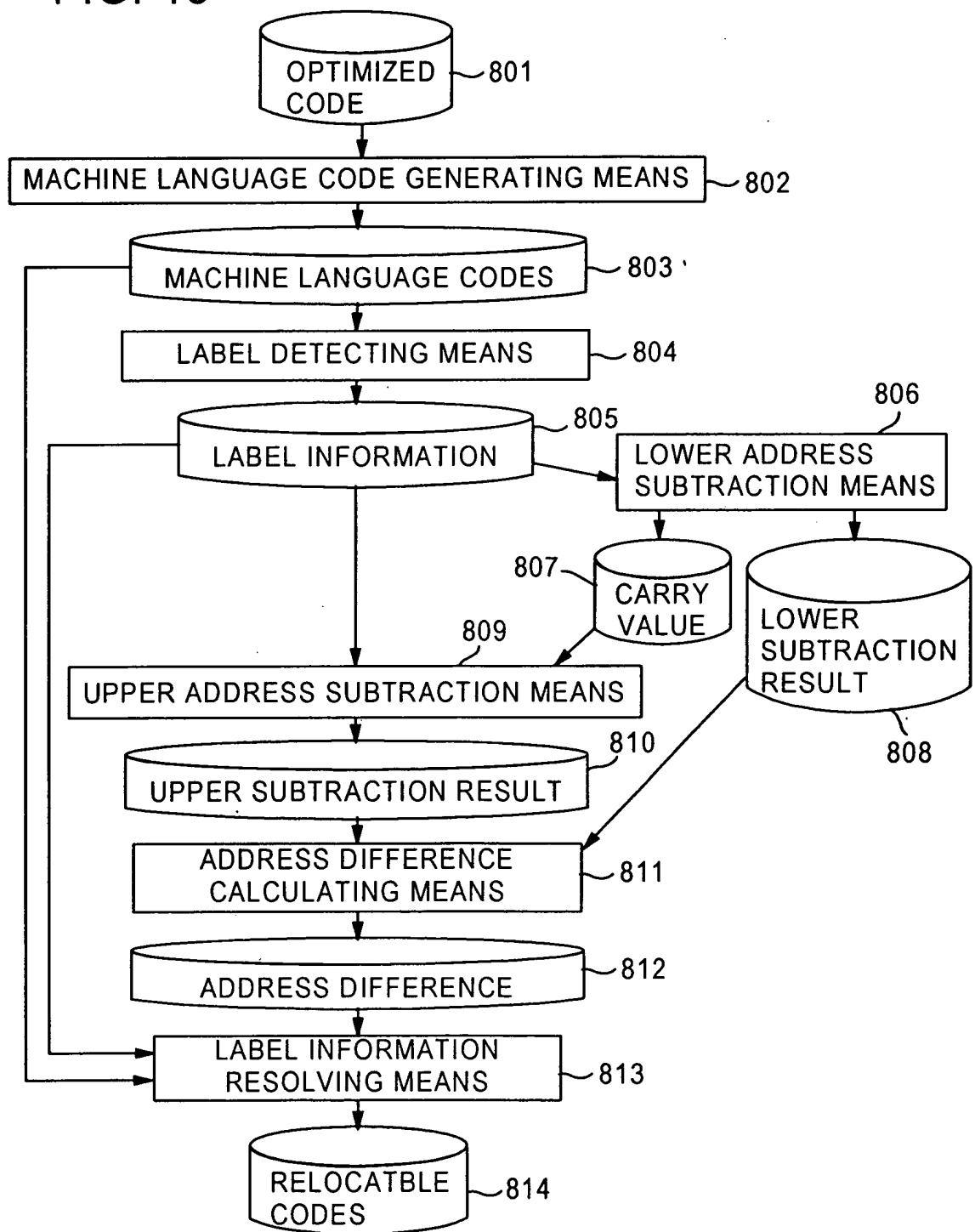


FIG. 16

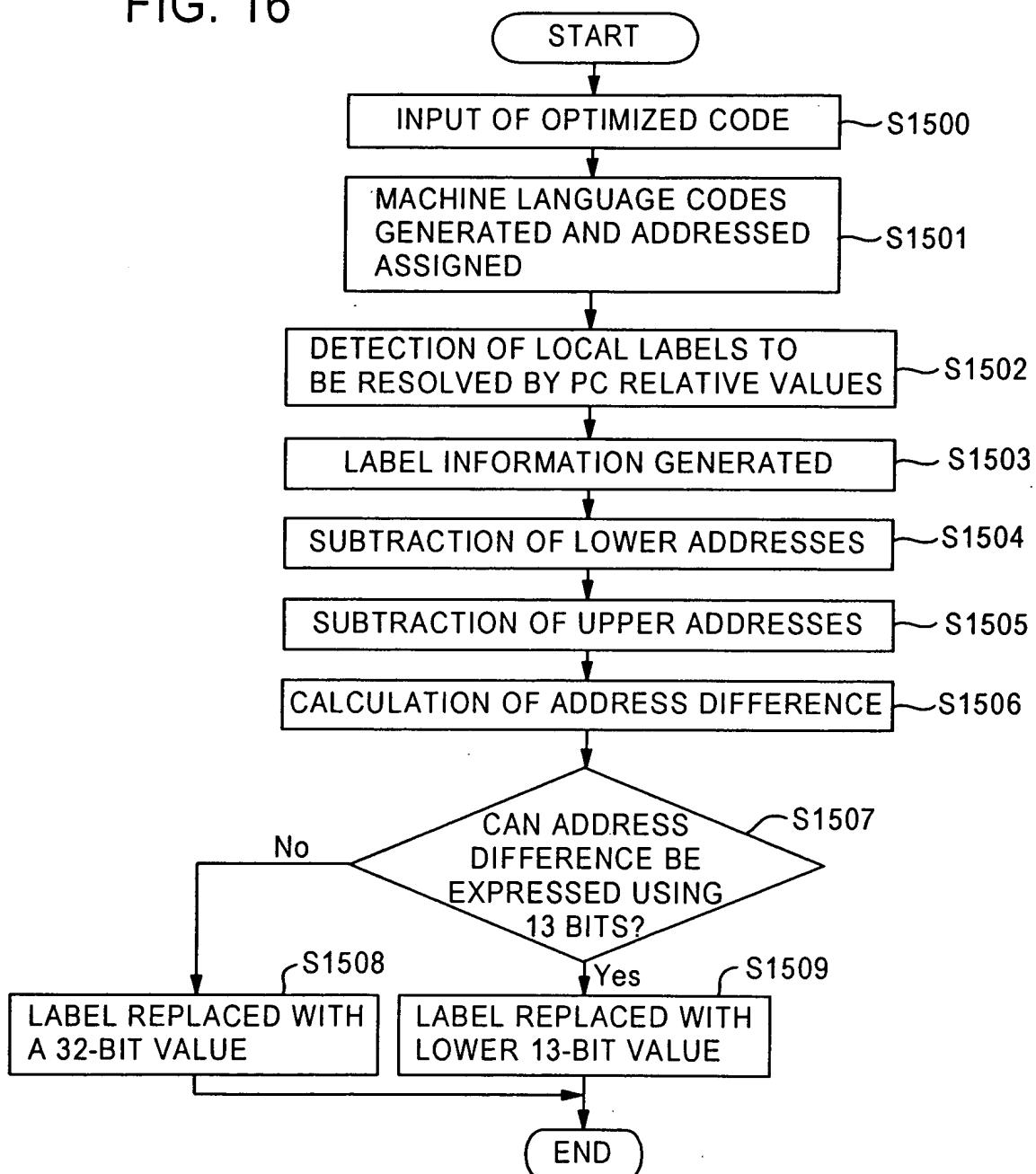


FIG. 17

| | | | | | | | |
|--------------|-----|----------------------|------------|----------|------------|----------|----------|
| 29'h00000000 | L1: | mov r2, r1 ... 1401 | jsr f | ... 1402 | add r0, r4 | ... 1403 | ... 1400 |
| 29'h00000001 | | and r1, r3 ... 1405 | mov L2, r2 | ... 1406 | | | 1404 |
| 29'h00000002 | | 1d (r2), r0 ... 1408 | bra L1 | ... 1409 | add r2, r3 | ... 1410 | 1407 |
| | | | | ... | | | 1408 |
| | | | | ... | | | 1409 |
| 29'h02468acf | L2: | | | | | | 1411 |

FIG. 18

| INSTRUCTION | RESOLVING VALUE |
|-------------|---|
| bra L1 | PC RELATIVE VALUE 32'h00000000-32'h00000012 |

FIG. 19

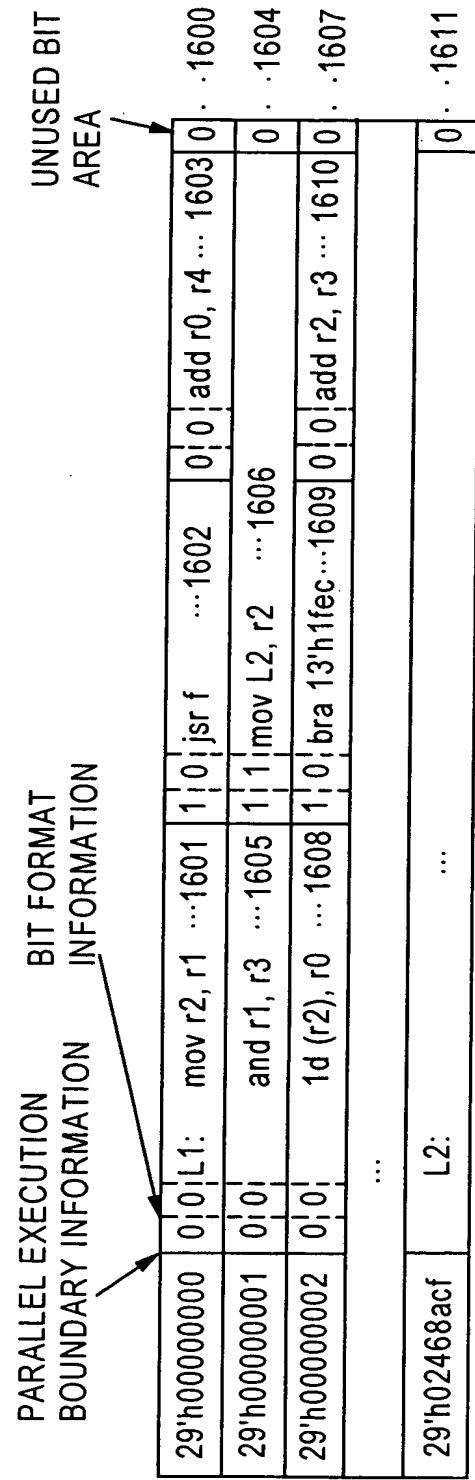


FIG. 20

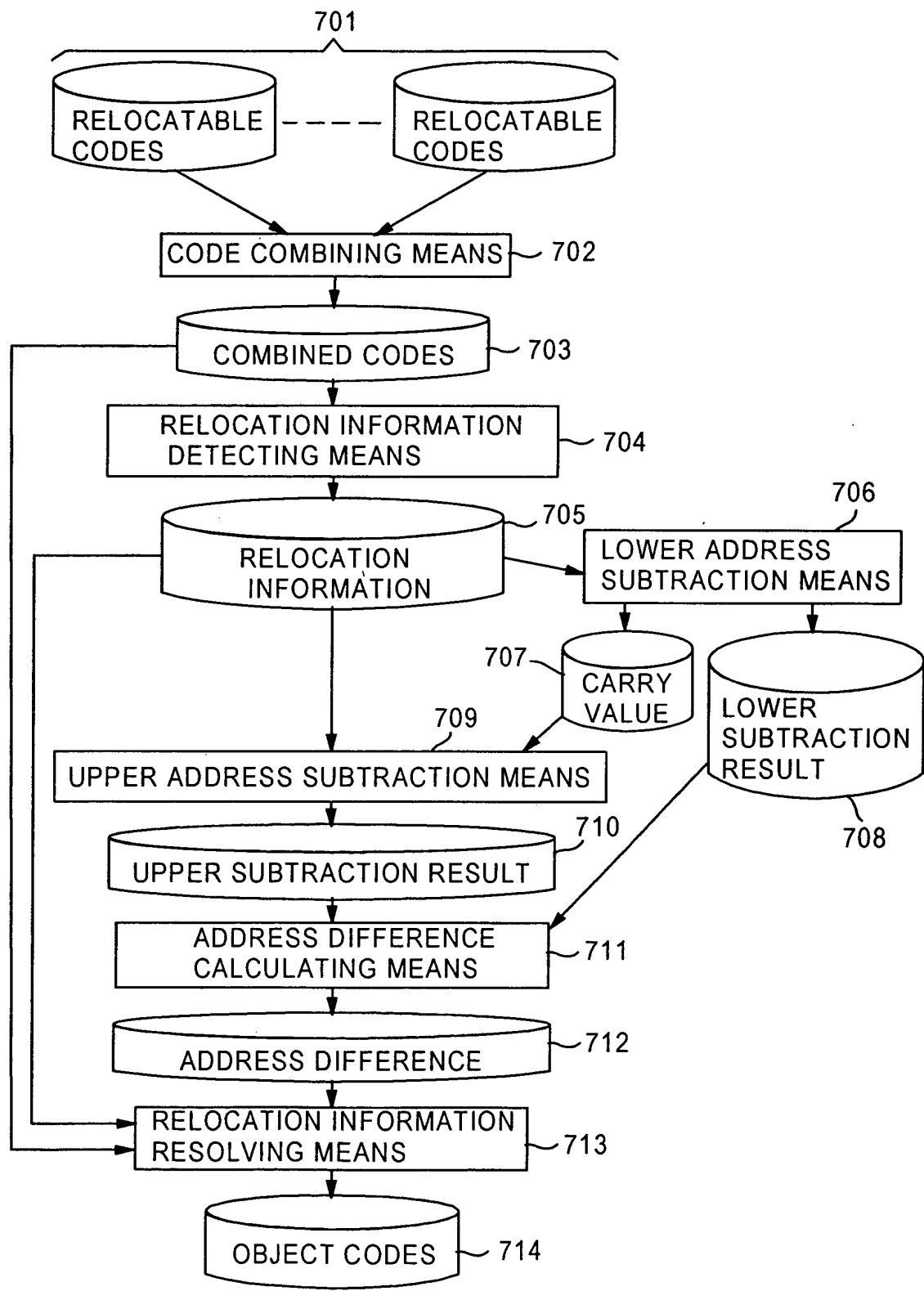


FIG. 21

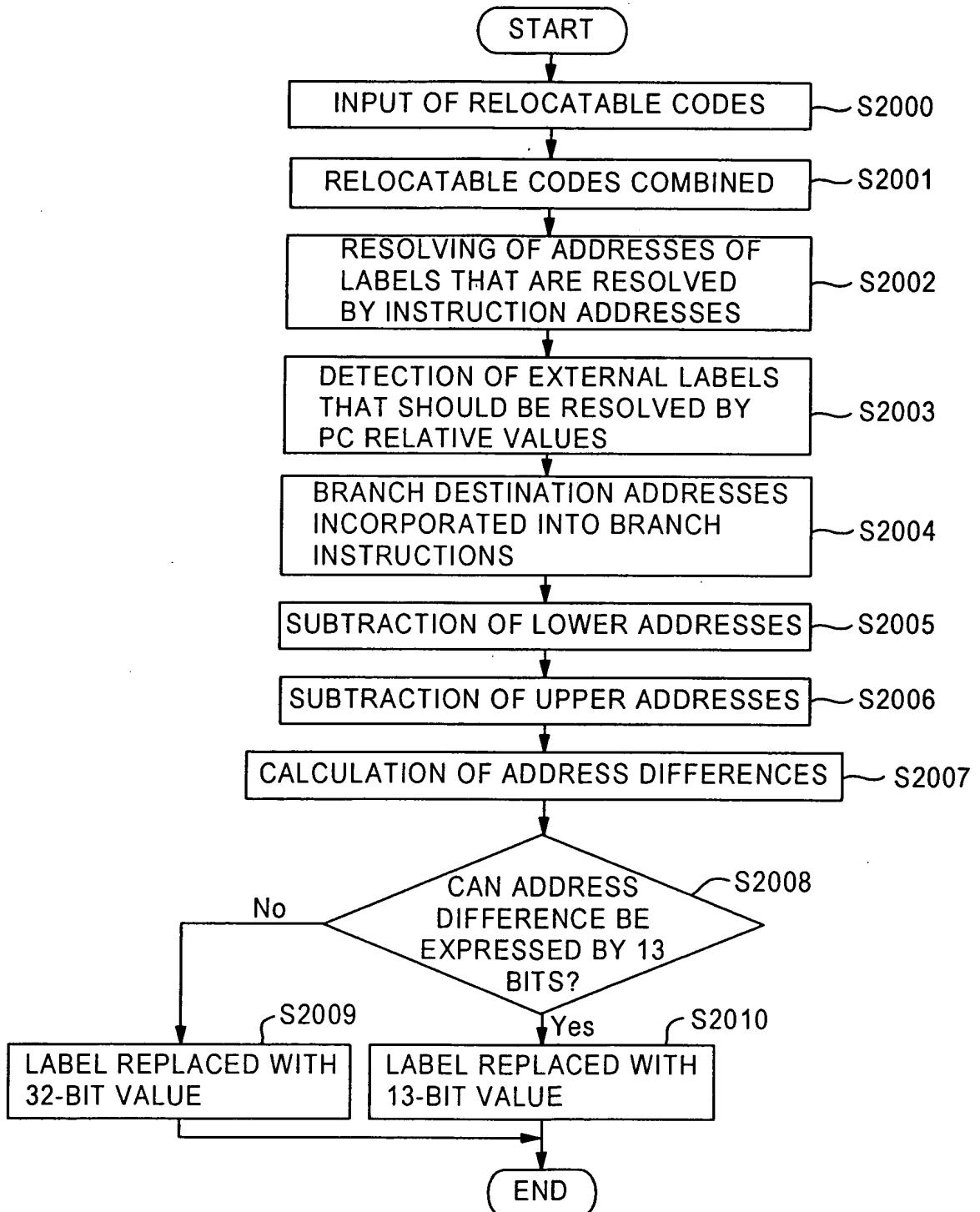


FIG. 22

| | | | | | | | | | | | | | | | | |
|--------------|---|---|----|-----|----------|---|---|-----|----------|---|---|-----|----------|---|-----|------|
| 29'h00000000 | 0 | 0 | f: | ret | ... 1701 | 0 | 0 | nop | ... 1702 | 1 | 0 | nop | ... 1703 | 0 | ... | 1700 |
|--------------|---|---|----|-----|----------|---|---|-----|----------|---|---|-----|----------|---|-----|------|

FIG. 23

FIG. 24

| | | | | | | | | | | | | | | | |
|---------------|---|---|-----|-------------|---------|---|---|----------------------|---------|---|---|------------|---------|---|------|
| 29'h000000000 | 0 | 0 | f: | ret | ...1901 | 0 | 0 | nop | ...1902 | 1 | 0 | nop | ...1903 | 0 | 1900 |
| 29'h000000001 | 0 | 0 | L1: | mov r2, r1 | ...1905 | 1 | 0 | jsr f | ...1906 | 0 | 0 | add r0, r4 | ...1907 | 0 | 1904 |
| 29'h000000002 | 0 | 0 | | and r1, r3 | ...1909 | 1 | 1 | mov 32'h12345680, r2 | ...1910 | | | | 0 | | 1908 |
| 29'h000000003 | 0 | 0 | | 1d (r2), r0 | ...1912 | 1 | 0 | bra 13'h1fec | ...1913 | 0 | 0 | add r2, r3 | ...1914 | 0 | 1911 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 29'h02468add0 | | | L2: | | | | | | | | | | 0 | | 1915 |

FIG. 25

| INSTRUCTION | RESOLVING VALUE |
|-------------|--|
| jsr f | PC RELATIVE VALUE 32'h00000000-32'h00000000a |

FIG. 26

| | | | | | | | | |
|--------------|---------|-------------|---------|--------------------------|---------|----------------|----------|----------|
| 29'h00000000 | 0 0 f: | ret | ...2101 | 0 0 nop | ...2102 | 1 0 nop | ...2103 | 0 ..2100 |
| 29'h00000001 | 0 0 L1: | mov r2, r1 | ...2105 | 1 0 jsr 13'h1fff4 | ...2106 | 0 0 add r0, r4 | ...2107 | 0 ..2104 |
| 29'h00000002 | 0 0 | and r1, r3 | ...2109 | 1 1 mov 32'h12345680, r2 | ...2110 | 0 ..2108 | 0 ..2111 | |
| 29'h00000003 | 0 0 | 1d (r2), r0 | ...2112 | 1 0 bra 13'h1fec... | 2113 | 0 0 add r2, r3 | ...2114 | 0 ..2115 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 29'h02468ad0 | L2: | ... | | | | | | |

FIG. 27

FIG. 28A

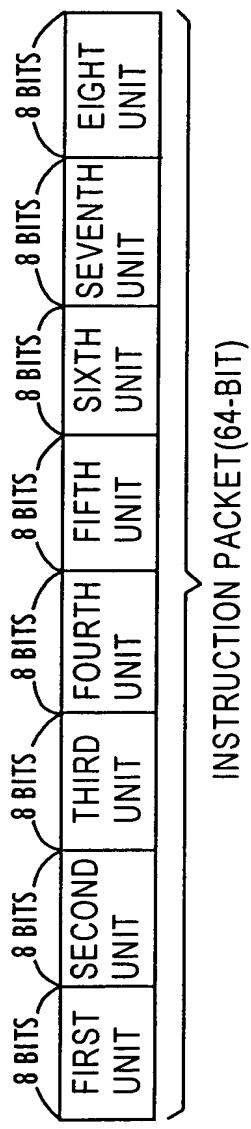


FIG. 28C

| IN-PACKET ADDRESS | UNIT |
|-------------------|--------------|
| 3'b000 | FIRST UNIT |
| 3'b001 | SECOND UNIT |
| 3'b010 | THIRD UNIT |
| 3'b011 | FOURTH UNIT |
| 3'b100 | FIFTH UNIT |
| 3'b101 | SIXTH UNIT |
| 3'b110 | SEVENTH UNIT |
| 3'b111 | EIGHTH UNIT |

FIG. 28B

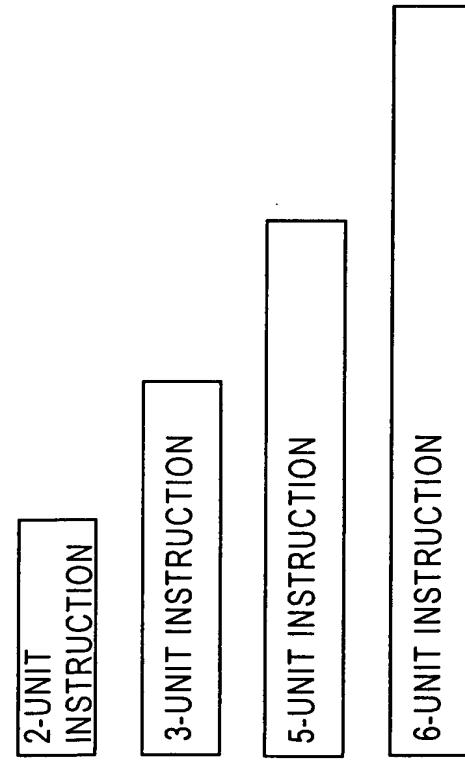


FIG. 29A

| | | LOWER 3 BITS OF ADDRESS VALUE | | |
|--------|--|-------------------------------------|------------------------------|------------------------------|
| | | 3'b000 | 3'b010 | 3'b100 |
| | | 3'b000 | 3'b010 | 3'b100 |
| 3'b000 | | 3'b000 | 3'b010 | 3'b100 |
| 3'b010 | | 3'b010 | 3'b100 | 3'b000 (CARRY IGNORED) |
| 3'b100 | | 3'b100 | 3'b000 (CARRY IGNORED) | 3'b010 (CARRY IGNORED) |

FIG. 29B

| | | LOWER 3 BITS OF ADDRESS VALUE(TO BE SUBTRACTED) | | |
|--------|--|--|------------------------------|------------------------------|
| | | 3'b000 | 3'b010 | 3'b100 |
| | | 3'b000 | 3'b010 | 3'b100 |
| 3'b000 | | 3'b000 | 3'b100 (CARRY IGNORED) | 3'b010 (CARRY IGNORED) |
| 3'b010 | | 3'b010 | 3'b000 | 3'b100 (CARRY IGNORED) |
| 3'b100 | | 3'b100 | 3'b010 | 3'b000 |

FIG. 30

FIG. 31A

| LOWER 3 BITS OF PC RELATIVE VALUE | 3'b000 | 3'b010 | 3'b100 |
|--------------------------------------|--------|--------|--------|
| 3'b000 | 3'b000 | 3'b000 | 3'b000 |
| 3'b010 | 3'b010 | 3'b010 | 3'b010 |
| 3'b100 | 3'b100 | 3'b100 | 3'b100 |

FIG. 31B

| LOWER 3 BITS OF PC RELATIVE VALUE | 3'b000 | 0b010 | 0b100 |
|--------------------------------------|--------|--------|--------|
| 3'b000 | 3'b000 | 3'b000 | 3'b000 |
| 3'b010 | 3'b010 | 3'b010 | 3'b010 |
| 3'b100 | 3'b100 | 3'b100 | 3'b100 |

FIG. 32

| | | | | | | | | | | | | |
|---------------|-----|-----|-------------|---------|-----|---------------------|---------|---------|------------|---------|------|------|
| 29'h00000000 | 0'0 | f: | ret | ...2601 | 0'0 | nop | ...2602 | 1'0 | nop | ...2603 | 0'. | 2600 |
| 29'h00000001 | 0'0 | L1: | mov r2, r1 | ...2605 | 1'0 | jsr 13'h1fff8 | ...2606 | 0'0 | add r0, r4 | ...2607 | 0'. | 2604 |
| 29'h00000002 | 0'0 | | and r1, r3 | ...2609 | 1'1 | mov 32h12345680, r2 | | ...2610 | | 0'. | 2608 | |
| 29'h00000003 | 0'0 | | 1d (r2), r0 | ...2612 | 1'0 | bra 13'h1ff0 | ...2613 | 0'0 | add r2, r3 | ...2614 | 0'. | 2611 |
| | | | | | | | | | | | | |
| 29'h02468add0 | | L2: | | ... | | | | | | 0'. | 2615 | |

FIG. 33

FIG. 34

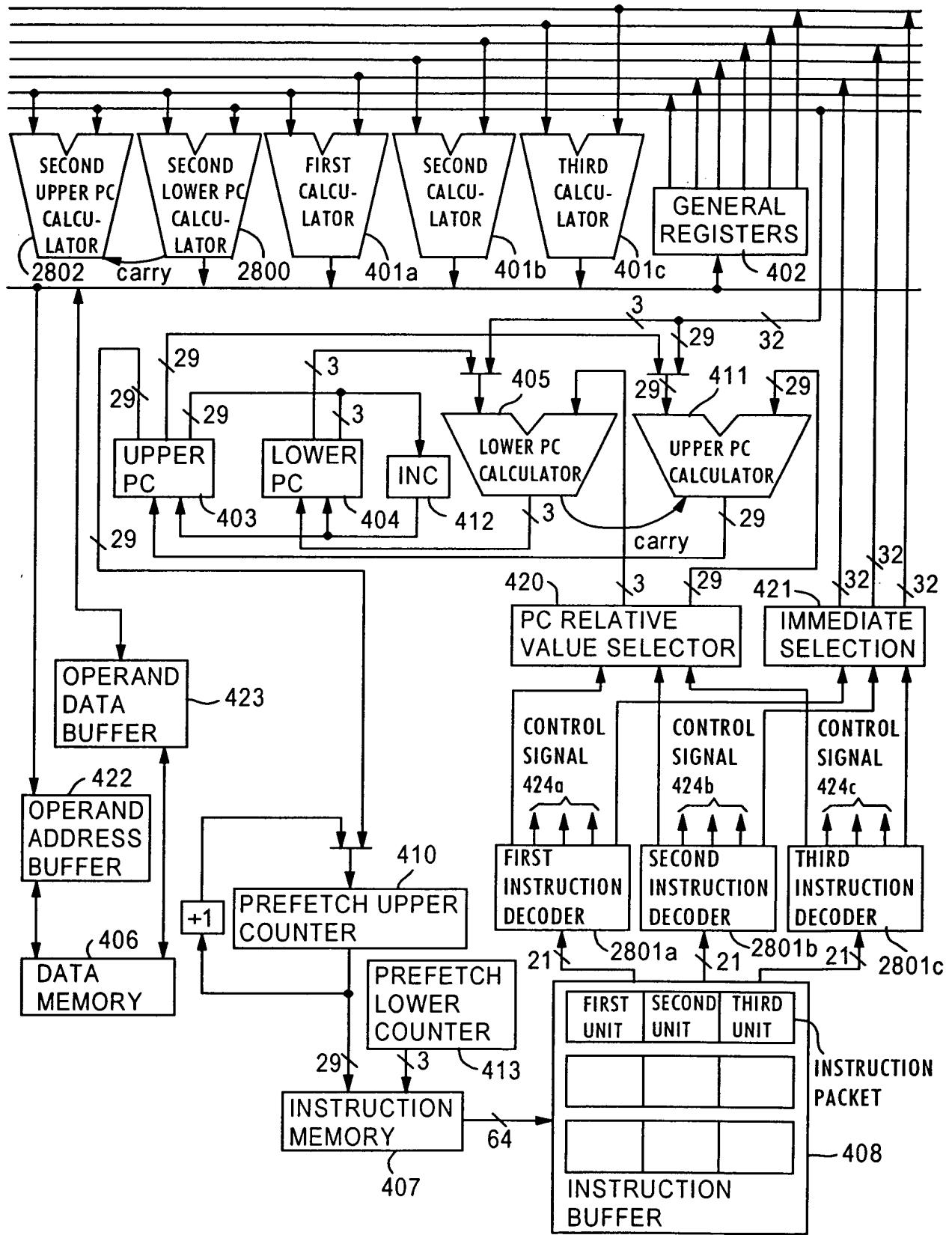


FIG. 35A

| MNEMONIC | OPERATION |
|-----------------|-----------------|
| addpc disp , Rn | Rn + disp -> Rn |

FIG. 35B

| MNEMONIC | OPERATION |
|-----------------|-----------------|
| subpc disp , Rn | Rn - disp -> Rn |

FIG. 36

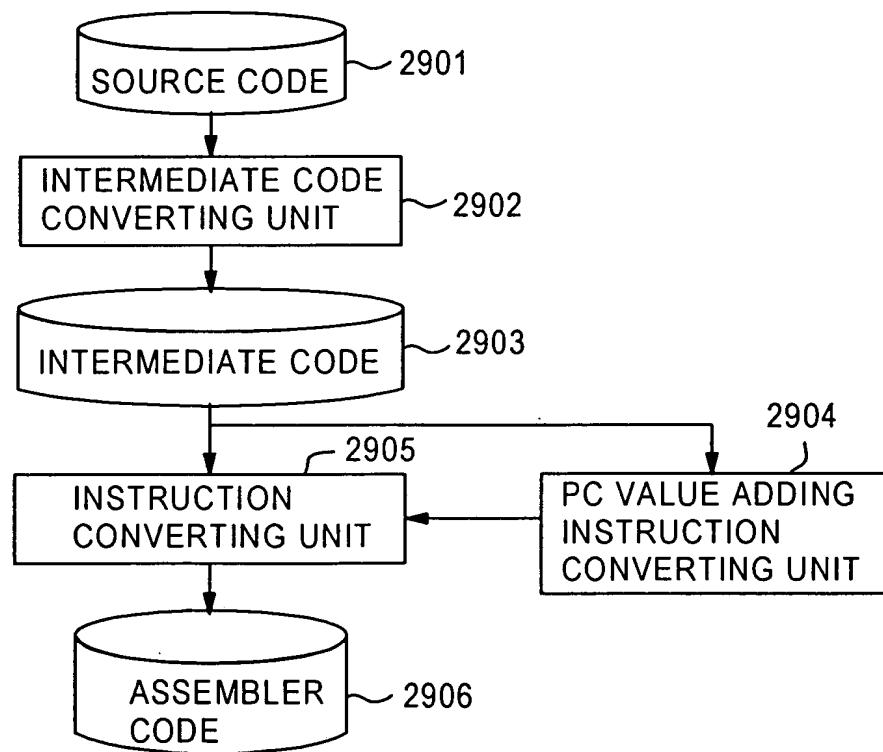


FIG. 37

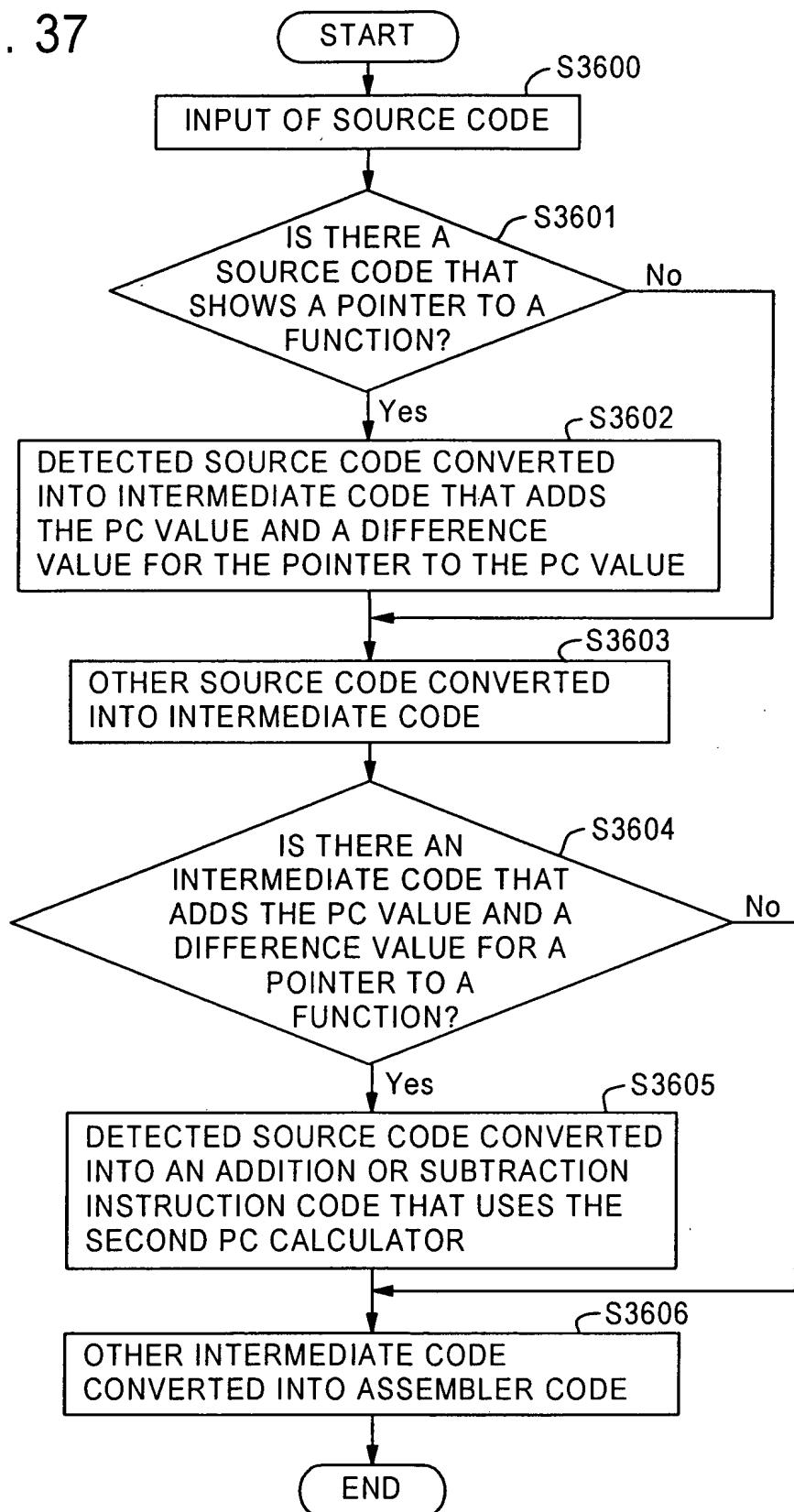


FIG. 38

```
extern int g1 () ;
extern int g2 () ;
extern int g3 () ;
extern int g4 () ;

f ( int i )
{
    int (*fp) () ;

    switch(i) {
        case 1 : fp = g1 ;
                   break ;
        case 2 : fp = g2 ;
                   break ;
        case 3 : fp = g3 ;
                   break ;
        default : fp = g4 ;
    }

    (*fp) () ;
}
```

FIG. 39

| | | |
|------|---------------------|------|
| f : | tmp = PC | 3201 |
| | i != 1 | 3202 |
| | br L1 | 3203 |
| | fp = (g1 - f) + tmp | 3204 |
| | jmp L | 3205 |
| L1 : | i != 2 | 3206 |
| | br L2 | 3207 |
| | fp = (g2 - f) + tmp | 3208 |
| | jmp L | 3209 |
| L2 : | i != 3 | 3210 |
| | br L3 | 3211 |
| | fp = (g3 - f) + tmp | 3212 |
| | jmp L | 3213 |
| L3 : | fp = (g4 - f) + tmp | 3214 |
| L : | * (fp) (i) | 3215 |

FIG. 40

| | | | |
|------|--------|------------|------|
| f : | mov | PC, r1 | 3201 |
| | compne | 1, r0 | 3202 |
| | br | L1 | 3203 |
| | addpc | g1 - f, r1 | 3204 |
| | jmp | L | 3205 |
| L1 : | cmpne | 2, r0 | 3206 |
| | br | L2 | 3207 |
| | addpc | g2 - f, r1 | 3208 |
| | jmp | L | 3209 |
| L2 : | cmpne | 3, r0 | 3210 |
| | br | L3 | 3211 |
| | addpc | g3 - f, r1 | 3212 |
| | jmp | L | 3213 |
| L3 : | addpc | g4 - f, r1 | 3214 |
| L : | jsr | (r1) | 3215 |
| | ret | | 3216 |

FIG. 41

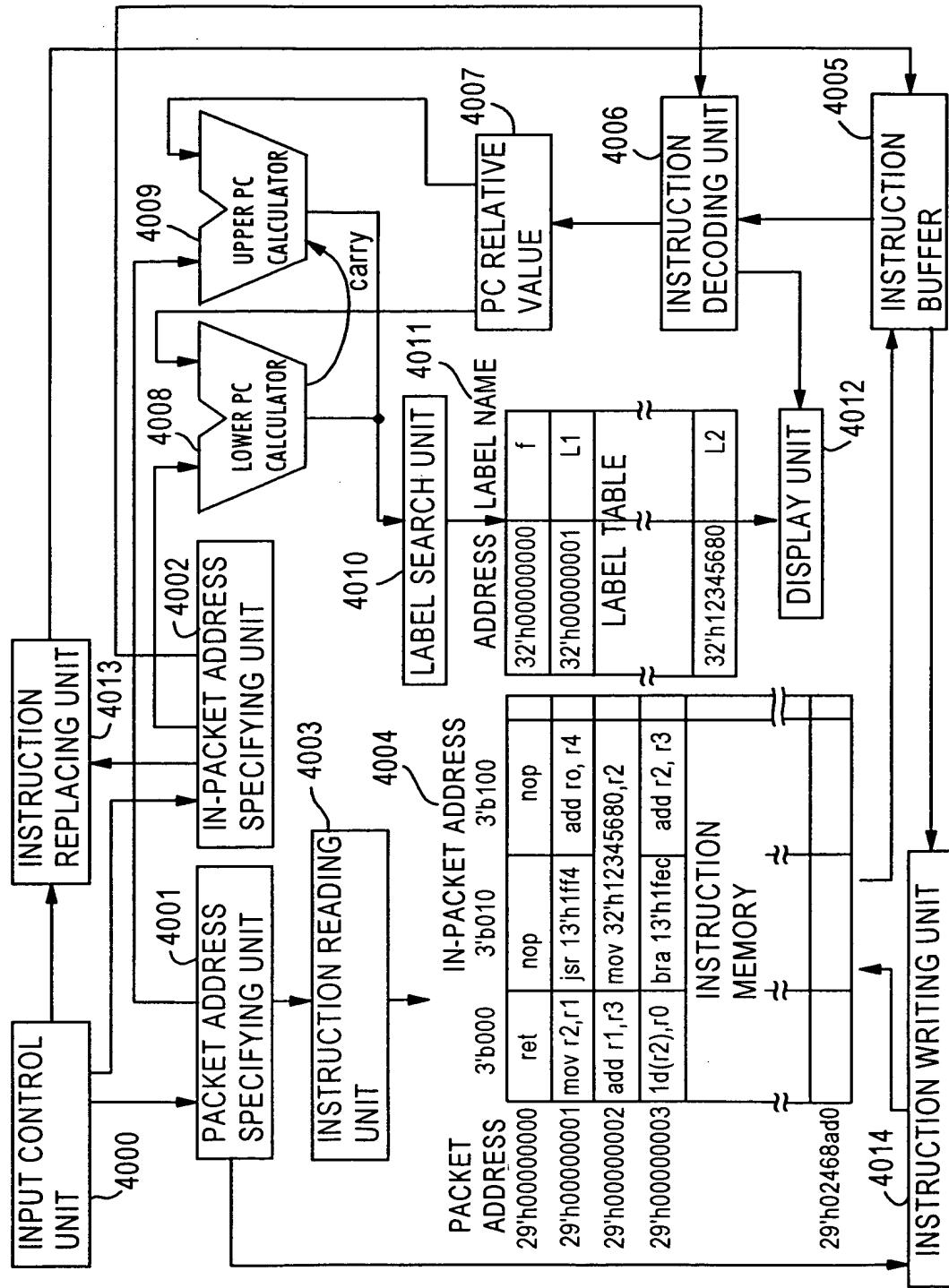


FIG. 42

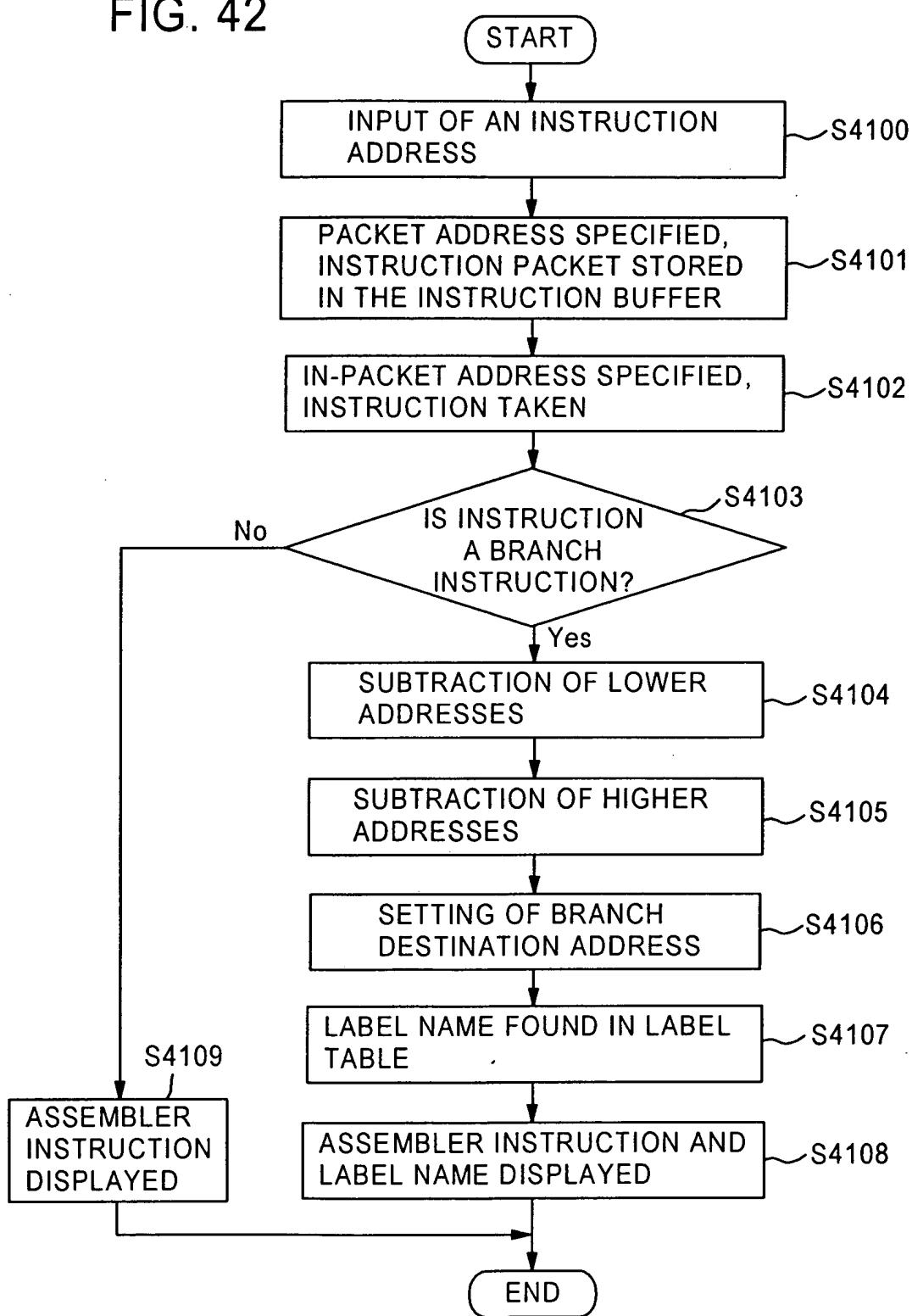


FIG. 43

